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ABSTRACT

Substantial numbers of children and adolescents experience symptoms of sadness, dysphoria, and other characteristics associated with depression. The nature of depression in children and adolescents has presented challenges in identification and definition. This chapter reviews research on depression in children and adolescents. Three current conceptualizations of depression are presented: depressed mood, depressive syndrome, and major depressive disorder. The chapter notes that the consequences of depression are quite serious and can include social impairment and adolescent depression and suicide. Studies indicate several risk factors for depression in childhood and adolescence, including: (1) individual factors including biological, cognitive, and social problem-solving and coping skills; and (2) contextual factors including social context, family, and stress. The chapter examines prior studies of preventive interventions aimed at depressive symptoms and disorder in young people in three categories: (1) universal preventive intervention; (2) selective preventive intervention; and (3) indicated preventive intervention. The chapter uses this research as a basis for setting future directions for the development of programs to prevent depression during childhood and adolescence; these directions include: (1) reducing suicide among youth by recognizing depression as a risk factor; (2) reducing mental disorder among youth, including addressing depression; and (3) enhancing quality of life for overall health improvement. (Contains 125 references.) (SD)

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• *CHAPTER 6* •

Prevention of Depression

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Depression is widely recognized as a serious mental health concern among children and youth. After decades of misunderstanding of the fundamental nature of this disorder in young people, researchers have generated increased knowledge of the characteristics, prevalence, course, and etiology of depression during the 1980s and 1990s (Hammen & Rudolph, in press; Petersen et al., 1993). It is now clear that substantial numbers of children and adolescents experience symptoms of sadness, dysphoria, and other characteristics associated with depression, whereas a smaller but still significant number of young people experience depression as a disorder as manifested in adults. The consequences of depressive symptoms and disorder during childhood and adolescence are significant as well, including greatly increased risk for depression later in life, as well as concurrent disruption in functioning in childhood and greatly increased risk for suicidal ideation and attempts. Finally, the importance of depression in young people is reflected in the pernicious tendency for depression to co-occur with a wide range of other problems and disorders, including anxiety, disruptive behavior disorders, and substance abuse (Angold & Costello, 1993; Compas & Hammen, 1994). Depression that co-occurs with other problems or disorders greatly increases the level of associated social problems and impairment.

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Despite the significance of depression as a mental health problem during childhood and adolescence, it received relatively little attention in *Healthy People 2000* (U.S. Department of Health and Human Services, Public Health Service [DHHS], 1991) or in the subsequent review of these national health objectives in *Healthy Youth 2000* (Fleming, 1996). Risk reduction objectives in *Healthy People 2000* that specifically target depression and those concerned with stress as a risk factor for depression are limited to goals for adults. The absence of attention to depression in young people is especially noteworthy in light of the emphasis that is given to youth suicide as a major health problem in both these documents because depression is one of the major risk factors for suicide in adolescence. Moreover, the goals for prevention that are outlined in *Healthy People 2000* underscore the need to prevent depression early in development to reduce its recurrence in adulthood.

The emerging knowledge base on the nature of depression in young people has set the stage for systematic efforts to prevent depression during childhood and adolescence. Although the field is poised to develop and evaluate the effects of preventive interventions, surprisingly little research has emerged on the prevention of depression (W. T. Grant Foundation Consortium, 1996). We will review research on depression in children and adolescents, including prior studies of preventive interventions aimed at depressive symptoms and disorder in young people. This research is used as a basis for setting future directions for the development of programs to prevent depression during childhood and adolescence. The evidence is clear that prevention of depression in young people should be a high priority for *Healthy People 2010*.

Nature of Depression in Children and Adolescents

Defining Depression in Young People

Perhaps more than any other disorder in childhood and adolescence, depression has presented challenges in conceptualization and definition (Compas, Ey, & Grant, 1993; Hammen & Rudolph, in press). These struggles have been the result of several factors.

First, for decades, there was resistance to the idea that young people could experience serious depression because psychoanalytic theory held that depression could not occur in childhood or adolescence as a consequence of inadequate development of the superego. Second, early conceptualizations of depression held that when this problem occurred, it was masked by other symptoms or disorders, especially externalizing disorders. Third, when the field finally came to recognize that depression does occur in young people, the criteria that were applied were a downward extension of adult criteria, with only minor exceptions, offering little or no acknowledgment of developmental differences.

Current conceptualizations of depression include recognition of depression as a symptom or mood, as a syndrome of intercorrelated symptoms, and as a psychiatric disorder (Angold, 1988; Cantwell & Baker, 1991; Compas et al., 1993; Kovacs, 1989). The first approach is concerned with *depressed mood* or affect and refers to the presence of sadness, unhappiness, or blue feelings for an unspecified time, as represented by the work of Petersen (e.g., Petersen, Sarigiani, & Kennedy, 1991), Kandel (e.g., Kandel & Davies, 1986), and others. The study of depressed mood during childhood and adolescence has emerged from developmental research in which depressive emotions are studied along with other features of biological, cognitive, and social development. No assumptions are made regarding the presence or absence of other symptoms that may reflect depression (e.g., poor appetite and insomnia).

The second approach is concerned with a *depressive syndrome*, a constellation of behaviors and emotions identified empirically through the reports of children/adolescents and other informants (e.g., parents and teachers). This strategy involves the use of multivariate statistical methods in the assessment and taxonomy of child and adolescent psychopathology, represented by the empirically based taxonomy of Achenbach (1985, 1993). Most pertinent here is the syndrome labeled *anxious/depressed*, composed of symptoms reflecting a mixture of anxiety and depression (see Table 6.1). The syndrome has been replicated in large samples in both the United States and the Netherlands (Achenbach, Verhulst, Baron, & Akkerhuis, 1987). A "pure" depressive (or anxious) syndrome did not emerge in this research in the reports of parents, teachers, and adolescents.

Table 6.1 Symptoms of the Anxious/Depressed Syndrome Based on Parent (CBCL) and Adolescent (YSR) Reports

Parent Report	*Adolescent Report*
Complains of loneliness	I feel lonely
Cries a lot	I cry a lot
Fears he or she might do something bad	I am afraid I might think or do something bad
Feels he or she has to be perfect	
Feels or complains that no one loves him or her	I feel that no one loves me
Feels others are out to get him or her	I feel that others are out to get me
Feels worthless or inferior	I feel worthless or inferior
Nervous, high-strung, or tense	I am nervous or tense
Too fearful or anxious	I am too fearful or anxious
Feels too guilty	I feel too guilty
Self-conscious or easily embarrassed	I am self-conscious or easily embarrassed
Suspicious	I am suspicious
Unhappy, sad, or depressed	I am unhappy, sad, or depressed
Worrying	I worry a lot
	I deliberately try to hurt or kill myself
	I think about killing myself

SOURCE: Achenbach (1991a, 1991b).

The third approach is based on a disease or disorder model of psychopathology and is currently reflected in the categorical diagnostic system of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*) of the American Psychiatric Association (1994) and the *International Classification of Diseases and Health Related Problems* (ICD-10) of the World Health Organization (1990). The *categorical diagnostic* approach assumes not only that depression includes the presence of an identifiable syndrome of associated symptoms but also that these symptoms are associated with significant levels of current distress or impairment in the individual's current functioning (American Psychiatric Association, 1994). With only a few exceptions, child or adolescent depression is diagnosed according to the same *DSM-IV* criteria as adult depression. Our focus is on major depressive disorder (MDD) and dys-

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thymia (DY); readers are referred to the *DSM-IV* for more information regarding bipolar disorders (see also Carlson, 1994).

To meet the criteria for MDD, the child or adolescent must have experienced *five or more* of the specified symptoms for *at least a 2-week period* at a level that differs from prior functioning, and at least one of the symptoms includes either (a) depressed or irritable mood or (b) anhedonia (see Table 6.2). Irritable mood may be observed in lieu of depressed mood in children and adolescents and is believed to be more common in this age group than in adults. The criteria for diagnosis of DY in childhood and adolescence are that for at least 1 year (as compared with 2 years for adults), an individual must display depressed or irritable mood daily, without more than 2 months symptom-free, along with additional symptoms. There must be no evidence of an episode of MDD during the first year of DY.

Although these three conceptualizations of "depression" in childhood and adolescence differ considerably, it is best to view them as related and complementary perspectives on the same phenomenon (Compas et al., 1993). Depressed mood and a syndrome of mixed anxiety/depression are markers of increased risk for the development of MDD. Moreover, high levels of depressed mood and mixed anxiety/depression symptoms are associated with significant impairment and problems even in the absence of symptoms that meet criteria for major depression. All three of these levels of depressive phenomena are appropriate targets for preventive interventions in childhood and adolescence.

Prevalence of Depression in Young People

The rationale for any preventive intervention depends in part on the prevalence of the problem or disorder in question. The greater the prevalence of the problem, the greater the need to implement intervention efforts to reduce the incidence of new cases. Furthermore, the degree to which the onset of the problem or disorder occurs early in development determines the need to intervene in childhood or adolescence. Therefore, data on the onset and prevalence of depression as a function of age are important to consider in the prevention of this problem.

Table 6.2 *DSM-IV* Criteria for Major Depressive Episode and Dysthymic Disorder

Major Depressive Episode

A. Five (or more) of the following symptoms during the same 2-week period; at least one of the symptoms is depressed mood or loss of interest or pleasure.

1. Depressed mood most of the day, nearly every day as indicated by subjective report or observation by others. (Note: In children and adolescents, can be irritable mood)
2. Markedly diminished interest or pleasure in all or almost all activities most of the day, nearly every day, as indicated by subjective account or observation by others
3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% body weight in a month), or decrease or increase in appetite nearly every day. (Note: In children, consider failure to make expected weight gains)
4. Insomnia or hypersomnia nearly every day
5. Psychomotor agitation or retardation nearly everyday (observable by others)
6. Fatigue or loss of energy nearly every day
7. Feelings of worthlessness or excessive or inappropriate guilt nearly every day
8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either subjective or observed by others)
9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

SOURCE: *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (p. 327). Copyright © 1994 American Psychiatric Association. Adapted by permission.

Although studies of depression in children and adolescents have reported widely varying prevalence rates, increasing evidence suggests that depressive disorders represent a serious difficulty faced by a sizeable and growing number of children and adolescents. Part of the difficulty in determining an accurate estimate of the prevalence of depression in children lies with the variety of ways in which depression has been conceptualized and measured (see above). Despite this problem, however, sufficient data are available on the prevalence of depressed mood, mixed anxiety/depression, and MDD and DY to indicate that they are targets worthy of preventive intervention.

In analyses of a single item reflecting unhappy, sad, or depressed mood, Achenbach (1991a, 1991b) found that parents reported 10%

Table 6.2 Continued

Major Depressive Episode (unipolar) can be further specified as mild, moderate, severe (based on functional impairment and severity of symptoms), with or without psychotic features, with or without melancholic features, whether or not recurrent, or chronic

Dysthymic Disorder

A. Depressed mood for most of the day, for more days than not, as indicated either by subjective account or observation by others, for at least 2 years. (Note: In children and adolescents, mood can be irritable and duration must be at least 1 year.)

B. Presence, while depressed, of two or more of the following:

1. Poor appetite or overeating
2. Insomnia or hypersomnia
3. Low energy or fatigue
4. Low self-esteem
5. Poor concentration or difficulty making decisions

C. During period of depression, the person has never been without symptoms A or B for more than 2 months at a time; also, the disturbance must not be accounted for by chronic Major Depressive Disorder (or Major Depressive Disorder in partial remission)—i.e., no Major Depressive Disorder in the first 2 years of the disturbance (1 year for children and adolescents)

SOURCE: Adapted from *DSM-IV*, pp. 327 and 349, American Psychiatric Association (1994).

to 20% of boys and 15% to 20% of girls who had not been referred for mental health services experienced this symptom at least somewhat or sometimes during the previous 6 months. Adolescents' self-reports indicated that 20% to 35% of nonreferred boys and 25% to 40% of nonreferred girls reported feeling sad or depressed during the prior 6 months. Petersen et al. (1991) found that depressed mood increased during adolescence for girls but remained relatively stable for boys throughout adolescence. These authors also found that reports of significant episodes of depressed mood (lasting 2 weeks or longer) increased from early adolescence (i.e., episodes occurring between 6th and 8th grades) to late adolescence (i.e., episodes occurring between 9th and 12th grades) for both boys and girls. Girls reported more episodes of depressed mood than boys at all age levels, with this gender difference increasing from early to late adolescence.

The prevalence of an empirically derived syndrome of mixed anxiety/depression has been examined in a nationally representative sample of children and adolescents (Achenbach, 1991a). Using a cutoff that achieves optimal sensitivity and specificity in distinguishing between children and youth who have been referred for mental health services and those who have not been referred, it is estimated that between 5% and 6% of the population experience significant levels of mixed anxiety/depression (Compas et al., 1993).

Several reviews have examined the data on the prevalence of MDD and DY in young people (e.g., Angold & Costello, 1993; Fleming & Offord, 1990; Hammen & Rudolph, in press; Petersen et al., 1993). Ten studies of MDD in community samples of children/adolescents reported *lifetime prevalence* rates ranging from 0% to 31%, with a mean of 11% (Petersen et al., 1993). Hammen and Rudolph reviewed eight relevant epidemiological surveys of childhood depressive symptoms and reported an overall range of 6- to 12-month prevalence of 0.4% to 8.0% for *DSM-III*-diagnosed major depressive episode. In those studies that distinguished between DY and MDD, Hammen and Rudolph report the prevalence of DY ranged from 0.07% to 4.9%.

Point prevalence estimates have been provided by Lewinsohn and colleagues from a large community sample of adolescents (Lewinsohn, Rohde, Seeley, & Hops, 1991; Rohde, Lewinsohn, & Seeley, 1991). On the basis of diagnostic interviews, 2.9% of a sample of 1,710 adolescents received a current diagnosis of either MDD, DY, or comorbid MDD and DY (Lewinsohn et al., 1991). Lifetime prevalence of depressive disorders was 20% in this sample, a finding that is within the range of lifetime prevalence rates in the earlier studies reviewed by Fleming and Offord (1990).

Reporting prevalence rates for children and adolescents as a group disguises potential age and gender differences. It appears that depression is relatively rare in children under 6 years of age but that it increases during early to middle adolescence, for which the rates found are comparable with the rates of depression in adults (Compas et al., in press). In addition to age differences, there are gender differences in depression in young people, with more depressive problems occurring for girls than for boys. Early to middle adolescence is widely believed to be the developmental period when significant increases occur in depression and when girls begin to

experience significantly more depression than boys (e.g., Angold & Rutter, 1992; Nolen-Hoeksema & Girgus, 1994; Petersen et al., 1991). Two recent reviews of the research on adolescent depression reveal that despite the increasing theoretical and empirical work devoted to explaining age and sex differences in depression during adolescence, these differences may not be as pervasive as is widely assumed (Leadbeater, Blatt, & Quinlan, 1995; Petersen, Compas, & Brooks-Gunn, 1992). Specifically, most studies of depression during adolescence have not examined age and gender differences, and among those that have, findings have been inconsistent with respect to the main effects of age and sex and, most important, the interaction of age and sex. More recently, Compas et al. (in press) found that gender differences in depressed mood, the anxious/depressed syndrome, and an analogue of MDD were more consistent and significantly larger in magnitude in a sample of adolescents who had been referred for mental health services than in a non-referred sample. These findings suggest that the emergence of gender differences in depressive symptoms in adolescence may be limited to a subgroup of adolescent girls who represent an extreme of the distribution of depressive symptoms among the adolescent population.

Finally, it has been well documented that there has been a general increase in depression among youth in recent years (Cross-National Collaborative Group, 1992). In studies comparing older and younger siblings and peers during the past few years, a higher prevalence of depression has been found in the children born most recently (e.g., Kovacs & Gatsonis, 1994; Lewinsohn, Rohde, Seeley, & Fischer, 1993; Ryan et al., 1992). Similarly, studies have also found an increase in the anxious/depressed syndrome during a 3-year period (Achenbach & Howell, 1993). Such changes in prevalence rates, especially during such short periods, highlight the importance of environmental risk factors in childhood depression (Hammen & Rudolph, in press).

In summary, depressed mood, a syndrome of mixed anxiety/depression, and MDD and DY occur with considerable frequency in childhood and adolescence. Data on developmental differences highlight early adolescence as a time of moderate to substantial increases in the prevalence of depression, suggesting that late childhood and early adolescence may be important times for preventive interventions.

Persistence, Recurrence, and Continuity of Depression

The persistence, recurrence, and continuity of a problem or disorder are also important to consider in developing the rationale for preventive interventions. If problems are relatively transient and likely to remit on their own, the need for intervention may be much less than if problems persist through long periods. In contrast, problems that persist during extended periods of development may warrant intensive efforts to prevent their initial onset. There are three significant concerns about the course of depression in childhood and adolescence. First, studies suggest that depression is highly persistent during childhood and adolescence and into adulthood. Although most youngsters recover within a year, a sizable minority remain depressed—approximately 20% 1 year later and 10% at 2 years (Keller et al., 1988; McCauley et al., 1993; Strober, Lampert, Schmidt, & Morrell, 1993). Studies of youth scoring high on self-report measures of depressive symptoms also suggest considerable stability of depressive symptoms through repeated testing (e.g., Achenbach, Howell, McConaughy, & Stanger, 1995; Garrison, Jackson, Marstellar, McKeown, & Addy, 1990; Verhulst & van der Ende, 1992; Stanger, McConaughy, & Achenbach, 1992). For example, Verhulst and van der Ende found considerable stability in internalizing problems in a large community sample of children. Of children who were above the clinical cutoff for internalizing problems on the Child Behavior Checklist (CBCL), 36% remained above cutoff at each of three subsequent 2-year follow-ups. Similarly, Harrington, Fudge, Rutter, Pickles, and Hill (1990) found that individuals who were treated for a "depressive syndrome" during childhood were at increased risk for affective disorders in adulthood and were more likely than a control group to receive subsequent psychiatric hospitalizations and treatment.

Second, recurrence of episodes of major depression is common among children and adolescents. Lewinsohn et al. (1993) noted that 18% of their community sample had a recurrence of a major depressive episode within 1 year, and McCauley et al. (1993) reported 25% relapse within a year and 54% within 3 years. Kovacs, Feinberg, Crouse-Novak, Paulauskas, and Finkelstein (1984) reported that among an outpatient sample, 26% with MDD had a new episode within 1 year of recovery, 40% within 2 years, and 72% within 5 years.

A third issue is continuity between childhood/adolescent depression and adult depression. Although less information is available on this topic than on recurrence or chronicity during childhood and adolescence, available data do indeed indicate that those who have been depressed as youngsters are likely to have recurrent episodes or continuing symptoms in adulthood (Harrington et al., 1990; Lewinsohn, Hoberman, & Rosenbaum, 1988).

Comorbidity

Epidemiological data suggest that comorbidity of child and adolescent depression is the rule, rather than the exception (Angold & Costello, 1993; Compas & Hammen, 1994). *DSM* diagnoses of MDD and DY and a mixed anxiety/depression syndrome have been found to be highly comorbid with oppositional defiant and conduct disorders (21% to 83%), anxiety disorders (30% to 75%), substance use (53%), attention deficit/hyperactivity disorder (0% to 57%), suicide (27% to 40%), and a host of other internalizing and externalizing problems (Angold & Costello, 1993; Compas & Hammen, 1994; Lewinsohn, Rohde, & Seeley, 1995). The rates of comorbid disorders experienced by children who are depressed are much higher than the rates of depression experienced by children with other disorders (Angold & Costello, 1993).

Although the sheer rates of comorbidity are disturbing in themselves, the clinical consequences of comorbidity in children and adolescents are of even greater concern. Comorbid conditions have profound consequences for children in increased use of mental health services, increases in associated school problems, and poorer global functioning (Lewinsohn et al., 1995). For example, individuals who received diagnoses of both major depression and conduct disorder as adolescents were more likely as adults to be involved in criminal activity and receive a diagnosis of antisocial personality disorder than those who had major depression in absence of conduct problems (Harrington et al., 1990). A particularly disturbing pattern of comorbidity involves depression and substance abuse or conduct disorder as reflected in their increased risk for suicidal behavior (Wagner, Cole, & Schwartzman, in press; see below).

Comorbidity has clear implications for the prevention of depression in children and adolescents. Few interventions, however, provide guidelines for managing or including comorbid conditions. In

addition, the majority of interventions have been developed using community samples of youth with elevated scores on measures of depressive symptoms, among whom comorbidity may be less of a problem than among youth who are at high risk for depression or have already manifested the disorder. Thus, comorbidity may be even more important to consider in indicated and targeted interventions than in universal interventions (see below).

Consequences of Depression

Researchers have examined both the short- and long-term sequelae of depressed affect, the anxious/depressed syndrome, and MDD. Among the outcomes that have been considered are impairment in academic and social functioning and suicide.

Social Impairment. Impairments in school behavior and academic functioning and in social and family functioning are apparent for youngsters with major depression and depressive symptoms (for reviews, see Hammen & Rudolph, in press; Kaslow & Racusin, 1990) and persist even after remission of a depressive episode (e.g., Puig-Antich et al., 1985). Elevated depressive symptoms not sufficient to meet diagnostic criteria are also associated with significant psychosocial impairment (Gotlib, Lewinsohn, & Seeley, 1995). In a longitudinal study of a large community sample of adolescents, Aseltine, Gore, and Colton (1994) examined emotional responsiveness to family and friend relations in previously depressed youth and nondepressed youth (on the basis of scores on the Center for Epidemiological Studies-Depression Scale [CES-D]). Adolescents who experienced chronically high levels of depressive symptoms were unresponsive to family problems but were highly reactive to peer relations. Among previously asymptomatic youth, family relations exerted greater effects on depressed mood than did relations with peers.

Achenbach and colleagues examined the 3- and 6-year consequences of symptoms on the anxious/depressed syndrome (Achenbach et al., 1995; Stanger, Achenbach, & McConaughy, 1993). The anxious/depressed syndrome generally was not a strong predictor of six "signs of disturbance" (e.g., academic problems, school behavior problems, suicidal behavior, and police contacts). Symptoms of anxiety/depression, however, predicted girls' referral for

mental health services at the 3-year follow-up (Stanger et al., 1993) and predicted boys' referral for mental health services in the 6-year follow-up (Achenbach et al., 1995).

Impaired academic, family, and social functioning associated with depression may interfere with the mastery of important developmental tasks, leaving children with inadequate sources of self-esteem and low perceived competence to face challenges. To the extent that depression results, in part, from perceived lack of competence and diminished self-esteem (e.g., Cole, 1991), a recurring cycle of symptoms and failure may ensue. Moreover, to the extent that incompetence and impairment in developmentally important arenas contribute to depressive reactions, it may be possible to identify youngsters at risk for whom preventive interventions might forestall the development of the depressive cycle.

Adolescent Depression and Suicide. Because of the finality of suicide and heightened public concern about adolescent suicide, special attention must be given to the link between depressive symptoms and disorder and suicidal ideation, attempted suicide, and completed suicide in young people. Research has established a clear link between depression, whether measured as elevated symptoms or a diagnosis, and subsequent suicide attempts. As with research on the more general consequences of depression, risk for attempted suicide increases dramatically when co-occurring symptoms or comorbid disorders are taken into account.

Lewinsohn, Rohde, and Seeley (1996) have provided extensive data on the association between depression and attempted suicide from the Oregon longitudinal study. They examined comorbidity among adolescent suicide attempters in the community and found higher rates of suicide attempts among adolescents with comorbid major depression plus substance abuse, compared with the rates of suicide attempts among those with any single diagnosis alone. The percentages who had attempted suicide were 19% with pure MDD, 22.4% with MDD comorbid with anxiety, 34.6% with MDD comorbid with substance abuse, and 38.9% with MDD comorbid with disruptive behavior. Rates of attempted suicide for other pure disorders were 2% for anxiety, 9.3% for substance use, and 4.7% for disruptive behavior. Thus, a diagnosis of depression was a significant risk factor for attempted suicide, but the risk increased

dramatically with the presence of a comorbid disruptive behavior disorder or substance abuse.

Similarly, in a study of a large community sample of adolescents, Wagner et al. (in press) found an association between depressive symptoms and attempted suicide. Of the sample, 14% responded affirmatively to the question, "Have you ever tried to take your own life?" Adolescents reporting high levels of depression along with either alcohol abuse or conduct problems were more likely to have made a suicide attempt than were adolescents reporting only one of these disorders. Adolescents reporting comorbid drug abuse plus either depression or conduct problems were more likely to have made a prior suicide attempt than those reporting only depression or conduct problems without drug abuse.

Risk Factors for Depression in Childhood and Adolescence

Many social, psychological, and biological factors have been examined as possible sources of risk for depressive symptoms and disorder in children and youth. Research has been guided by a wide range of theoretical perspectives, including psychodynamic, behavioral, cognitive, interpersonal, family, biological, and environmental models that vary in their comprehensiveness and in their level of empirical support. Although consensus has not been achieved on the risk factors and mechanisms that account for the occurrence of depression in young people, several research approaches show considerable promise. Each model can be used to identify factors that play an etiologic role in the development of depression and therefore may serve as a target in preventive interventions for children and adolescents. Integration of these various perspectives has led to a *developmental biopsychosocial* perspective on depression during childhood and adolescence (e.g., Cicchetti, Rogosch, & Toth, 1994; Gotlib & Hammen, 1992; Hammen & Rudolph, in press; Petersen et al., 1993). Integrative models have important implications for the prevention of depression in young people. First, they emphasize that developmental processes and children's developmental level must be taken into account in intervention process. Second, they highlight the need to consider a range of factors that may be associated with depression in children and adolescents. To the extent that depression is a heterogeneous dis-

order, it is not surprising that there may be a wide range of risk factors and a variety of etiological paths. These include both internal characteristics of the children as well as features of the children's social context. Third, integrative models recognize that the interplay among these factors and their salience may change with development.

Individual Factors

Biological Factors. Biological factors, including genetics, neurotransmitter processes, brain structure and functioning, and neuroendocrine processes play a central role in most current models of depression in adults. Research on biological processes in adults has led to the investigation of similar processes in children and adolescents. Enough evidence has been found to support the view that child and adolescent depression reflects biological dysregulation of multiple systems including the endocrine system, neurotransmitter functions, and basic body rhythms including sleep cycles. Many of the studies are preliminary, however, in that they have involved small sample sizes, and a number of contradictory results have been found. The most striking features of the child and adolescent research are that it is limited and has yielded inconsistent results (Brooks-Gunn, Petersen, & Compas, 1995).

For example, studies of depressed children and adolescents have not found consistent evidence of sleep disturbances similar to those of adults (e.g., Emslie, Rush, Weinberg, Rintelmann, & Roffwarg, 1994; Puig-Antich, 1987). In the area of growth hormone, most studies examining changes in growth hormone secretion in youngsters have shown changes as a function of depressive symptomatology similar to those in adults, but a few have not (for review, see Emslie et al., 1994). The same is true for cortisol hypersecretion (Weller, Weller, Fristad, Cantwell, & Preskorn, 1986). Overall, the evidence for clear-cut, well-defined biological abnormalities is less compelling in children and adolescents than in adults, but in each of the major areas there is some evidence that abnormalities are similar. Challenges to understanding the underlying biological changes in child and adolescent depression include biological changes during puberty and the lack of standardized normative data for many of the tests (Brooks-Gunn et al., 1995). The biological

data suggest the need for continued investigation of possible subtypes of depression in children that may serve as markers of the need for early intervention or preventive efforts.

Cognitive Factors. On the basis of cognitive models of depression in adulthood, it has been established that depressed and nondepressed children and adolescents differ in most major cognitive processes associated with depression (for review, see Garber & Hilsman, 1992; Kaslow, Brown, & Mee, 1994). For example, depressed children and adolescents have low self-esteem (e.g., Altmann & Gotlib, 1988; King, Naylor, Segal, Evans, & Shain, 1993), and they often feel hopeless about their future, a risk factor for suicidal behavior in children and adolescents (e.g., Asarnow & Bates, 1988; McCauley, Mitchell, Burke, & Moss, 1988). Depressed children and adolescents report more negatively distorted cognitions (e.g., Kazdin, 1990; Kendall, Stark, & Adam, 1990), and depression particularly is associated with negative cognitions regarding loss and self-concept (Ambrose & Rholes, 1993; Jolly & Dykman, 1994). Depressed youngsters also display helpless or pessimistic styles of interpreting causes of negative and positive events (Gladstone & Kaslow, 1995; Hilsman & Garber, 1995; Nolen-Hoeksema, Girgus, & Seligman, 1986; Weisz, Sweeney, Proffitt, & Carr, 1993). An internal, stable, and global style of construing the causes of negative events is predictive of later depressive symptoms (e.g., Nolen-Hoeksema, Girgus, & Seligman, 1992), suggesting that this maladaptive attributional style may be a risk factor for depression.

Although it appears that for the most part depressed children and adolescents report negative cognitive patterns similar to those of depressed adults, it is unclear how these factors relate to broader environmental and developmental processes. For example, in a longitudinal investigation of the diathesis-stress version of the attributional style model of depression, Nolen-Hoeksema et al. (1992) examined the relations among stressful life events, attributional style, and depressive symptoms in school-age children from the third to the seventh grade. They found a developmental sequence in which stressful life events played a major role during the third grade, pessimistic explanatory styles began to have their impact during the fourth grade, and the two factors began to interact, as proposed by the diathesis-stress model, after the sixth

grade. This study suggests that cognitive factors may interact with environmental stress, and their role may change with development.

Numerous questions about the development and function of children's cognitions remain to be answered, and their role in depression requires further clarification. Given the gaps in the knowledge of the significance and mechanisms in depression in children, it is surprising that cognitive factors have been given such heavy emphasis in current approaches to prevention (see below).

Social Problem-Solving and Coping Skills. Deficiencies in coping skills and social problem-solving strategies have also been examined as an individual source of vulnerability to depression. Various studies have indicated that depressed children are relatively impaired in various areas of social functioning. A few longitudinal studies further suggest that social deficiencies such as poorer quality of friendships (e.g., Goodyer, Wright, & Altham, 1990) and lower social competence (e.g., Cole, Martin, Powers, & Truglio, in press) increase the risk for future depression.

The ability to generate alternative solutions to hypothetical problems and the quality of interpersonal problem-solving strategies may distinguish depressed from nondepressed youngsters (e.g., Goodman, Gravitt, & Kaslow, 1995; Quiggle, Garber, Panak, & Dodge, 1992; Rudolph, Hammen, & Burge, 1994). Conversely, the use of strategies to cope with stress that focus on one's emotions and contribute to a process of rumination may increase the risk for depression (e.g., Grant & Compas, 1995; Nolen-Hoeksema & Girgus, 1994). Despite the promise of coping skills and problem-solving skills in clarifying risk and mechanisms of depression, many issues remain unresolved, including their etiological significance and their specificity to depression as opposed to other problems.

Contextual Factors

Social Context. As we have noted above, depression in young people has been increasing, and this increase is most likely associated with changes in the social environment of children and adolescents as opposed to increases in the reproductive rate of populations biologically at risk for depression. Poverty and economic hardship are broad contextual factors that may be associated with

depression in young people. During the last 20 years, there has been a persistent increase in the poverty rate in the United States, both relatively and absolutely, especially for children (Huston, 1991).

The link between poverty or economic hardship and mental health is evident in a number of studies that have found higher levels of emotional and behavioral problems in poorer families (McLoyd, 1990). This association is mediated, however, by community and family factors that act on children, such as neighborhood violence, marital conflict, family disorganization, physical abuse, and child neglect (Conger et al., 1992). Most data on such effects have used child antisocial behavior as their mental health outcome measure (Dodge, Pettit, Gregory, & Bates, 1994). McLoyd, however, has proposed a pathway from poverty to parental depression that produced an increase in nonsupportive and punitive parenting and a subsequent increase in children's emotional problems, including higher levels of depressive symptoms. Following this theme, Conger and his colleagues (e.g., Conger et al., 1992; Ge, Conger, Lorenz, Shanahan, & Elder, 1995) found that economic pressure led to parental depressive symptoms and demoralization, producing marital problems and parenting disruption that contributed to depressive symptoms in adolescence.

Family. Several features of the family context constitute potential risk for depression in children: being the child of a depressed parent, dysfunctional relations between the parent and child, and parental discord and exposure to other adversities in the family context. Children of depressed parents have an increased risk for psychopathology and dysfunction, with some studies indicating that more than 70% of the offspring will experience diagnosable disorders (e.g., Fendrich, Warner, & Weissman, 1990; Hammen, Burge, Burney, & Adrian, 1990). Family studies have documented considerable impairments of functioning in infant, school-age, and adolescent children of depressed parents (e.g., Hammen et al., 1990; Keller et al., 1986; Weissman et al., 1987; Zahn-Waxler, Cummings, Iannotti, & Radke-Yarrow, 1984). Elevated rates of symptoms and diagnoses are found when children of depressed parents are compared both with normal families and with those with medical or other psychiatric illness (see review by Hammen, 1991). 19

The evidence of risk to children by virtue of having depressed parents is compelling and clearly calls for preventive interventions. Moreover, considerable evidence points to depression in youngsters as a frequent outcome of disrupted and dysfunctional family patterns. It is likely that rejecting, critical, or uninvolved parenting contributes to depression both directly by creating children's negative self-regard and indirectly by failing to provide skills and supports necessary to deal with life difficulties and challenges (Hammen, 1991). Moreover, dysfunctional families likely present children with exposure to high levels of stressors and continuing adversities, which in themselves may trigger depression. In view of the apparent impact of the family environment on children's depression, it is striking that some interventions for childhood depression attend rather minimally, and others not at all, to the family context. Interventions could be designed to target symptoms and disorder manifested in parental depression and/or to reduce marital conflict and discord (Downey & Coyne, 1990).

Stress. Whether measured as acute negative events or as continuing adversity, such as family disruption, studies of children and adolescents find a significant, moderately large association between stress and psychological symptoms (e.g., Compas, 1987; Jensen, Richters, Ussery, Bloedau, & Davis, 1991). The relation is not specific to depression, but both depressive symptoms and depressive disorders appear to result in part from psychosocial stressors (e.g., Compas, Grant, & Ey, 1994; Goodyer & Altham, 1991). Furthermore, relatively little research has clarified whether particular types of stressors are related to depressive symptoms. Family stressors, such as marital discord, abuse/neglect, aversive family climate, and parental illness, may certainly have a significant negative impact on children, but the effect is not specific to depression (e.g., Compas, Worsham, Epping-Jordan, & Grant, 1994).

Some studies have examined factors that mediate or moderate the effects of stress on depression in children (e.g., Robinson, Garber, & Hilsman, 1995). The role of dysfunctional cognitions, such as depressive attribution style or negative self-cognitions, has been examined, yielding mixed support (e.g., Hammen, 1988; Nolen-Hoeksema et al., 1992; Panak & Garber, 1992). A more specific version of the cognitive diathesis-stress model predicts that cognitive vulnerability in specific domains such as achievement or

social relationships will trigger depression when negative life events match that domain; this model has received some support in the few studies that actually test it (Hammen & Goodman-Brown, 1990; Hilsman & Garber, 1995; Turner & Cole, 1994). Other research has focused on the moderating role of resources and social supports (including quality of relationship with the parent) in buffering the effects of stress on children's depression. Such studies generally have indicated that social and family resources exert a direct or buffering effect on stress outcomes (e.g., Forehand et al., 1991; Gore, Aseltine, & Colton, 1992; Hammen, Burge, & Adrian, 1991; Robinson & Garber, 1995).

Preventive Interventions

The conceptualization of preventive interventions has grown in its complexity and sophistication, as reflected in other chapters in this volume. We will consider the prevention of depression in young people in the context of recent broad conceptualizations of preventive interventions and "prevention science" (Coie et al., 1993). As a first step in understanding the current literature, it is essential to distinguish between treatment and prevention. *Treatment* is best viewed as the reduction in symptoms or the amelioration of disorder in already identified cases. Although treatment effects could manifest themselves through time, at least some effects are likely to be immediate. *Prevention* is commonly defined as a reduction in the occurrence of new cases or a delay in the onset of new cases or symptoms. For disorders such as depression, in which symptoms tend to fluctuate during the life span in number and severity, it is also possible to define prevention as a reduction in the recurrence of symptoms. It is, of course, possible for a single intervention to have both treatment and prevention effects. It seems likely that any intervention with the power to prevent future occurrences of depressive problems will also alleviate current symptoms.

Preventive interventions for psychopathology fall into three categories—universal, selective, and indicated (Institute of Medicine, 1994). A *universal preventive intervention* is one targeted to the general population, such as a social skills intervention provided to an entire school. Although the vast majority of individuals within the group are not at risk, universal interventions are typically

nonintrusive and are likely to provide skills or information that will be helpful to a wide segment of the population, even if individuals are not at risk for a particular disorder. A *selective preventive intervention* is geared toward a group whose risk of developing a disorder is significantly higher than average because of the presence of biological and/or psychosocial risk factors. An example is a program delivered to children whose parents have a history of depression, regardless of the current distress levels of the individual children. Finally, an *indicated preventive intervention* is one targeted to high-risk individuals who are demonstrating early symptoms of mental disorder or who have biological and/or psychological markers indicating a predisposition for the disorder. Decisions about whether a universal, selective, or indicated prevention program is called for should be driven in part by a cost-benefit analysis of the effects of intervention. Ideally, prevention programs will address risk factors before they stabilize (Coie et al., 1993). This must be balanced, however, with careful consideration of whether an individual's or group's risk of developing a disorder outweighs the cost, time, and any possible harmful side effects (e.g., stigmatization or increased distress) of the proposed preventive intervention.

Although the distinctions between the three prevention categories may appear simple, it is often difficult to determine the level at which a preventive intervention is operating. In the case of depression, this is partly a consequence of the multiple levels of depressive phenomena described above. Because the overlap and predictive relationship of depressed mood, mixed anxiety/depression syndrome, and depressive disorders have not yet been fully established, it is unclear whether mild depressive symptoms represent risk factors for a major depressive episode, early signs of the onset of major depression, or a separate disorder entirely. Thus, for example, an attempt to prevent the onset of MDD in a sample of adolescents with high levels of depressive symptoms is a selective preventive intervention if depressive symptoms are viewed as risk factors for major depression or an indicated preventive intervention if they are considered early symptoms of the disorder itself. Further complicating matters, some interventions focus on the prevention of depressive symptoms rather than depressive disorder. Because the term *depression* has been used to refer to such a wide range of conditions, it is essential to carefully consider the opera-

tional definition of depression when comparing various prevention programs.

Outcome Studies

A small but growing body of research on the prevention of depression in children and adolescents has now appeared in the literature. Table 6.3 displays results from these studies, summarizing information about sample characteristics, research design, control groups, the nature of the targeted risk factors, characteristics of intervention, treatment effects, and prevention effects. These studies are quite varied with regard to the age of the participants, ranging from young children (Kellam, Rebok, Mayer, Ialongo, & Kalodner, 1994) to middle and older adolescents (Clarke et al., 1995). Sample sizes vary from moderate (N = 69) to large (N = 204); little attention has been given, however, to the statistical power generated by the size of these samples. Because the point prevalence of depressive disorder is often low, researchers will need either participants with a high likelihood of developing a depression or an extremely large sample. All the studies described here include a control group, with some form of random assignment to intervention and control conditions. All the studies include a measure of depressive symptoms as one of the outcomes (the Children's Depression Inventory [CDI] was used in three studies, and the CES-D in the other), whereas only one study includes a measure of MDD (Clarke et al., 1995). Three of the interventions are cognitive-behavioral in nature in that they are designed to reduce negative cognitions, enhance social problem-solving skills, and/or enhance skills for coping with stress.

Three of these studies use depressive symptoms as the primary risk factor in identifying their target groups for intervention, whereas the fourth uses reading delays as a risk factor (Kellam et al., 1994). The use of depressive symptoms as a risk factor reflects an indicated intervention approach for these programs. Elevated depressive symptoms have been used as a risk factor in part because they are one of the best predictors of subsequent depressive disorder. Only one study that included depressive symptoms as a risk factor, however, also specifically targeted the prevention of depressive disorders (Clarke et al., 1995). Unfortunately, the use of depressive symptoms as the primary risk factor leads to some

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Table 6.3 Prevention of Depression Outcome Studies

Study	*Selection of Participants (N)*	*Control (N)*	*Mean Age*	*Risk Factors*	*Measures/ Source*	*Intervention*	*Treatment Effects*	*Prevention Effects*
Clarke et al. (1995)	High levels of depressive symptoms and no affective diagnosis (76)	Randomly assigned by individual (74)	15.5	Depressive symptoms; negative and irrational cognitions	CES-D/self; GAF/self; K-SADS-E/self; HDRS/ interviewer; parent interview	School-based; 11 hours during 5 weeks; master's+ leader taught identification and modification of negative thoughts	Decreased CES-D scores for prevention group	Fewer MDD and DY diagnoses in intervention group at 12 months
Jaycox et al. (1994)	High levels of depressive symptoms and parental conflict (69)	Randomly assigned by individual to wait-list control (24); no-treatent control from another school (50)	11.5	Depressive symptoms; cognitive distortions and deficiencies; pessimistic explanatory style; life stressors	CDI/self; CPQ/self; CASQ/self; RCDS/self; CBCL/parent; teacher report/teacher	Clinic based; 18 hours during 12 weeks; Graduate-level+ leader taught social problem-solving skills, skills for coping with family conflict, and/or modification of negative attributions	Decreased CDI scores for prevention groups, mediated by decrease in negative attributions and decreased externalizing behavior according to teacher report	Fewer children from intervention groups experienced "moderate depression" at 6 months
Gillham et al. (1995)	Same as above	Same as above	Same as above	Same as above	CDI/self; CPQ/self; CASQ/self; RCDS/self	Same as above	N/A	Prevention of symptom onset or recurrence in intervention groups at 24 months; effect mediated by explanatory style

(continued)

Table 6.3 Continued

Study	*Selection of Participants (N)*	*Control (N)*	*Mean Age*	*Risk Factors*	*Measures/ Source*	*Intervention*	*Treatment Effects*	*Prevention Effects*
Kellam et al. (1994)	General student population (204)	Randomly assigned by classrooms within schools (158) and across schools (226)	6.3	Reading delays; poor self-efficacy	CAT-Reading/self; CDI/self	Yearlong classroom reading enrichment program, with group-based approach to mastery and flexible correction routines	Reading achievement gains reduced continuity of depressive symptoms from fall to spring	No long-term follow-up
Petersen et al. (in press)	Student population oversampled for depressive symptoms (150+)	Randomly assigned by individuals (150+)	7th grade	Depressive symptoms; school, family, and social stressors; poor coping skills	SIQYA; mastery and coping, emotional tone/self; DISC/self; CDI/self; YSR/self	11 hours during 16 weeks; graduate-level + leader taught skills for assessing events, problem solving, social skills	Improved coping and emotional tone, lower YSR internalizing and externalizing scores	All *ns* at 12 months.

NOTES: CASQ = Children's Attributional Style Questionnaire
CAT = California Achievement Test
CBCL = Child Behavior Checklist
CDI = Children's Depression Inventory
HDRS = Hamilton Depression Rating Scales
K-SADS-E = Schedule for Affective Disorders and Schizophrenia for School-Age Children-Epidemiological Version
RCDS = Reynolds Children's Depression Scale
SIQYA = Self-Image Questionnaire for Young Adolescents
YSR = Youth Self Report
CES-D = Center for Epidemiological Studies-Depression Scale
CPQ = Child's Perception Questionnaire
DISC = Diagnostic Interview Schedule for Children
GAF = Global Assessment of Functioning

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difficulties because depressive symptoms are often both the risk factor and the target of prevention (Jaycox, Reivich, Gillham, & Seligman, 1994; Petersen, Leffert, Graham, Alwin, & Ding, in press). Thus, only prevention of symptom increase or recurrence can be studied, not prevention of symptom onset.

Because space does not permit a detailed description of each of the intervention protocols used in these prevention trials, we will focus on describing two of the interventions, each of which represents one of the main forms prevention trials have taken. The first study, the only trial to demonstrate a prevention effect for as long as 24 months post-intervention, is a school-based targeted prevention of depressive symptoms, based on the teaching of cognitive techniques (Gillham, Reivich, Jaycox, & Seligman, 1995; Jaycox et al., 1994). The prevention trials conducted by Clarke et al. (1995) and Petersen et al. (in press) are based on similar interventions. The second study described is a universal prevention program geared toward improving reading achievement (Kellam et al., 1994).

Seligman and colleagues (Gillham et al., 1995; Jaycox et al., 1994) focused on the prevention of depressive symptoms in 10- to 13-year-old children identified as "at-risk" on the basis of reports of parental conflict and current depressive symptoms. Participants were randomized to a control group, cognitive training group, social problem-solving group, or combined cognitive and social problem-solving group. The groups, consisting of 10 to 12 students, were conducted by doctoral students for 90 minutes weekly for 12 weeks during after-school hours. The cognitive component emphasized that beliefs about stressful events, rather than the events themselves, lead to distress. Students were taught to identify negative causal attributions and to challenge pessimistic explanations of events. The cognitive component also encouraged students to look for solutions to problems and to actively cope with negative feelings. The social problem-solving component specifically taught skills for dealing with problems, such as goal setting, information gathering, generation of multiple possible solutions, and decision making. Within the problem-solving component, coping with family conflict was emphasized, and students were taught to use distraction, relaxation skills, distancing, and social support in response to stressful family situations. Because there were no major differences among the three active intervention groups, intervention groups were collapsed for statistical analysis.

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Although Kellam et al. (1994) also hypothesized that a pessimistic explanatory style is an important mechanism in the development and maintenance of depressive symptoms, they took a different approach to prevention, focusing on improving mastery rather than attempting to directly alter cognitions. On the basis of research suggesting that poor academic mastery may initiate and intensify depressive symptoms (Kellam, Werthamer-Larson, Dolan, & Brown, 1991), they designed a universal prevention program for first-grade students. First-grade teachers were trained in the use of an enriched curriculum, designed to improve reading achievement by using a group-based assessment of mastery and a flexible corrective process. Students did not progress to new material until 80% of the class had achieved at least 80% of the learning objectives of the current unit. Correction was tailored to individuals and was flexible in the timing and variety of corrective techniques. Within the prevention trial, students were randomized by classroom to receive either regular reading programs or the enriched curriculum throughout their first-grade year.

The initial outcomes of these studies are encouraging. Jaycox et al. (1994) demonstrated that brief training in modifying negative cognitions and social problem solving decreased the negative attributions made by young adolescents experiencing depressive symptoms and high levels of family conflict. This decrease in negative attributions mediated a decrease in depressive symptoms shown by the prevention group on a self-report measure. Teacher-reported externalizing behaviors also decreased in the prevention group; this effect, however, was not mediated by changes in attributions. Follow-up analyses with this sample (Gillham et al., 1995) found that differences in depressive symptoms between control and intervention groups grew through time. Children in the prevention group with initially high symptom levels showed some symptom decrease and were less likely than control group children to report symptoms in the moderate to severe range at the 6-month, 12-month, 18-month, and 24-month assessments, demonstrating maintenance of initial gains. Initially low-symptom children in the prevention group compared with the control group showed a significantly smaller increase in symptoms through time, indicating prevention of onset of depressive symptoms through the 24-month follow-up. Overall, at the 24-month follow-up, children in the intervention group were only half as likely as children in the control

group to report depressive symptoms in the moderate to severe range. Gillham and colleagues also continued to explore the mechanism of prevention, demonstrating at all follow-up points that children in the prevention group demonstrated a significantly more optimistic explanatory style and that explanatory style mediated the program's effect of depressive symptoms. These effects are quite striking in light of the brief nature of the original intervention.

Kellam et al. (1994) demonstrated that children starting the year with high levels of depressive symptoms who made gains in reading achievement as a result of the intervention were less likely to have high levels of depressive symptoms at the end of the school year. The pattern was somewhat different for boys and girls, with the effect for girls based solely on achievement gains and the effect for boys also being related to placement in the reading intervention or nonintervention classroom, as well as achievement gains.

The problem-solving and social skills program implemented by Petersen et al. (in press) with seventh-grade students led to improvements in coping skills and decreases in self-reported internalizing and externalizing scores. The specific relationship between coping skills in leading to reduced depressive symptoms was not assessed. This study was one of the few to attempt to understand the impact of the intervention of subgroups, however, with data analyzed by sex and by high- or low-risk status. Improvements in emotional tone were most pronounced for high-risk girls in the intervention group.

In the Clarke et al. (1995) study of adolescents with depressive symptoms, on the basis of diagnostic interviews with adolescents at a 1-year follow-up, intervention participants had significantly fewer diagnoses of MDD or DY (14.5%) than did the control group (25.7%). There were no differences, however, between the control and intervention groups on questionnaire-rated levels of depressive symptoms, global functioning, or interviewer-rated depression.

All these studies have demonstrated some beneficial effects; they did not, however, all specifically assess the relationship between decreases in depressive symptoms and the hypothesized risk factors. For example, although Clarke et al. (1995) demonstrated a short-term reduction in CES-D scores for individuals who had been instructed in the identification and modification of negative thoughts, it is not clear whether this was due to participants'

improved skills because coping with negative thoughts was not assessed.

Depression and Suicide Prevention

As we described above, there is a strong relationship between depressive disorders and suicide, particularly in individuals who also have substance abuse or conduct problems. Therefore, although suicide is addressed by Kalafat in the next chapter in this volume, it warrants some attention here. As rates of suicide have climbed in the 15- to 24-year-old age group, more and more prevention programs are being implemented. One survey shows that the number of schools implementing prevention programs more than doubled between the academic years 1984-1985 to 1986-1987, with programs reaching nearly 200,000 students (Garland, Shaffer, & Whittle, 1989).

Prevention programs have ranged from schoolwide programs designed to increase competence and decrease stress, to phone hotlines designed for crisis intervention. Thus far, the majority of youth suicide prevention programs have been high school-based programs led by teachers or guidance counselors. Most programs last about 4 hours, with goals of raising the awareness of youth about suicide, teaching warning signs, teaching youth to break confidentiality if they suspect a peer is suicidal, and facilitating access to available mental health resources (Garland et al., 1989).

Thus far, few well-controlled suicide prevention studies have been done (see Kalafat, this volume). Although the chapter by Kalafat highlights the potential of the second wave of suicide prevention programs, substantial controversy exists surrounding the success of prevention programs currently in place. Researchers have raised three main concerns about the types of prevention programs currently being implemented. First, "facts" about suicide taught in these programs may not be well validated. Warning signs of suicide, such as giving away possessions and talking about the future in ambiguous terms, have not been empirically validated (Shaffer, Garland, Gould, Fisher, & Trautman, 1989). In addition, although the majority of programs teach that suicide is not related to mental illness but simply a response that anyone might have in the face of overwhelming stress, evidence clearly indicates that suicide is strongly related to psychopathology. Although the ration-

ale of programs may be to decrease the stigma of suicidal ideation so that individuals will seek help, some fear that this view romanticizes suicide, which would not occur if students were taught that a suicide attempt was a sign of severe mental illness (Brent & Perper, 1995). Second, targeting a general student population does not appear to be effective. Of the 172,000 students involved in prevention programs in 1986-1987, according to census data, only 18 would have been expected to commit suicide, leaving the other 1,800 adolescents in the population who committed suicide during these years unassisted (Garland et al., 1989). In addition, the vast majority of adolescents participating in suicide prevention programs already knew the warning signs of suicide, believed that suicidal threats should be taken seriously, believed that mental health professionals were helpful, and knew to break confidentiality if a friend discussed suicidal ideation (Shaffer et al., 1989). Finally, many researchers fear that beyond being ineffective, some suicide prevention programs may actually harm participants. Some evidence suggests that suicide rates increase following the airing of television programs about youth suicide. The amount of publicity given to a local youth suicide is significantly related to the number of copycat suicides following the first suicide (Shaffer et al., 1989). In addition, not only did the views of the most at-risk youth fail to change following a prevention program, many reported feeling more hopeless, less sure that mental health professionals would be of help, and more likely to identify suicide as a possible solution to a problem (Shaffer, Garland, Vieland, Underwood, & Busner, 1991).

One direction for enhancing the efficacy of suicide prevention efforts is to establish a closer link with depression prevention programs. The strong association between depression and suicide clearly suggests that this is an important avenue for future research. As discussed below, both depression and suicide may be best addressed as part of broader preventive interventions that address wide ranges of problems.

Conclusions and Future Directions

We will now consider the progress that has been made in the prevention of depression in young people and outline directions for

future research by addressing six key questions for the field. These are key issues to consider in the formulation of goals for *Healthy People 2010* as they pertain to depression in young people.

1. Should we prevent depression in childhood and adolescence?

The evidence is clear that depression represents a significant health and mental health problem for children and adolescents. The prevalence of significant symptoms of depressed mood, symptoms of a syndrome of mixed anxiety/depression, and rates of MDD and DY are all sizeable, particularly among adolescents. Moreover, there is evidence that depressive problems are increasing among children and youth.

In addition to establishing the prevalence of depressive problems, research has shown that there are significant correlates and consequences of depression in young people. These include impairment in academic and interpersonal functioning and disrupted development. The onset of depression in childhood or adolescence also predicts a worse course for the disorder, with an increased likelihood of recurrent episodes during adulthood. The most serious correlate of depression in childhood and adolescence is the dramatic increase in risk for attempted and completed suicide. Although suicide is affected by a number of factors, an episode of major depression increases the risk for a suicide attempt dramatically, and this risk is further magnified when depression is comorbid with disruptive behavior disorders or substance or alcohol abuse. Given the high priority given in *Healthy People 2000* (DHHS, 1991) to reducing the rate of adolescent suicide, further consideration of depression in suicide is essential.

On the basis of the evidence of the prevalence, severity, course, and correlates of depression in childhood and adolescence, it is clear that depression should be a high priority for preventive interventions that are a part of the objectives of *Healthy People 2010*. Early intervention could reduce the risk for associated problems and impairment during childhood and adolescence and reduce the risk for future depression during adulthood as well. From a developmental perspective, late childhood and early adolescence are optimal times for the prevention of depression and, indirectly, the many problems that are associated with depression. Early adolescence appears to be an important time to deter the negative

course that is set in motion by the onset of depressive problems at a young age.

2. Can we prevent depression in childhood and adolescence?

Although it is clear that the prevention of depression among children and youth should be a major health priority, the evidence is less clear that we are currently capable of accomplishing this important objective. At best, current intervention efforts can be labeled as promising; at worst, the wide-scale implementation of prevention programs aimed at depression would be premature at the present time.

The promise of current programs is reflected in several features of current research and program development. First, researchers have shown that it is feasible to implement depression prevention programs in schools and in mental health settings. The programs that have been developed have been delivered in an efficient, cost-effective manner that is acceptable to children, adolescents, families, and schools. Second, the initial findings suggest that depressive symptoms can be reduced and that the onset of elevated depressive symptoms and perhaps episodes of MDD and DY can be decreased. Third, there is some evidence that these effects can be maintained at follow-ups as long as 1 to 2 years after the intervention (Clarke et al., 1995; Gillham et al., 1995).

These promising features of depression prevention programs are balanced by several limitations in current research. First, these studies have relied primarily on self-reports of depressed mood or depressive symptoms, rather than indexes of other levels of depressive problems. None of the studies employed the widely used measures that reflect the mixed anxiety/depression syndrome identified by Achenbach (1991b, 1991c) and colleagues. Only one study used standardized interviews to derive *DSM* diagnoses of MDD and DY. Thus, the demonstrated impact of these programs has been primarily limited to only one level of depressive problems, as reported by a single informant. Second, the samples in these studies have been relatively small and limited in their representativeness. Third, although Clarke et al. (1995) and Seligman and his associates (Gillham et al., 1995; Jaycox et al., 1994) reported evidence for follow-up effects at 12 and 24 months, respectively, Kellam et al. (1994) have not yet reported follow-up data on their intervention,

and Petersen et al. (in press) reported that initial gains from the intervention were lost at 12 months. Thus, the ability of these programs to truly prevent depression in the long term is unclear. Fourth, none of these studies included measures of other forms of psychopathology that are frequently associated with depression. Given that comorbid problems may play a role in the onset or recurrence of depression, it is essential to include measures of other syndromes and disorders.

3. Should preventive interventions for depression be universal, selective, or indicated in nature?

All three approaches to prevention are represented in these initial intervention studies. Kellam et al. (1994) and Petersen et al. (in press) report on universal interventions administered to all students in public school settings, Seligman and colleagues (Gillham et al., 1995; Jaycox et al., 1994) report on a selective intervention on the basis of cognitive and social risk factors, and Clarke et al. (1995) describe an indicated intervention for adolescents who are already experiencing depressive symptoms. Thus, there is preliminary support for each of these approaches.

A broader perspective on preventive interventions suggests that these types of interventions need to be linked in a hierarchical and sequential fashion (Compas, 1995). That is, these three approaches to prevention are not in competition with one another to determine which is the optimal way to prevent depression or other disorders. They are complementary in the effects that they can have on the incidence and recurrence of a disorder. Universal interventions are important to reduce the incidence in the population as a whole. They will reach the largest proportion of the population and are likely to deter some of the broad risk factors from coming into play. It is unlikely, however, that universal interventions can deliver a sufficient dose nor address risk factors with sufficient specificity to prevent depression in those children and youth who are at high risk. Therefore, universal interventions need to be complemented by selective interventions that are delivered to subgroups within the population who are distinguished on the basis of exposure to personal or contextual risk factors. Because the identification of risk factors is always an imperfect process and no intervention will be completely effective in preventing a problem, selective interven-

tions need to be coordinated with indicated interventions for those children and youth who already evidence significant depressive symptoms.

4. Have the crucial risk factors been addressed in these interventions?

Depression is a heterogeneous problem with multiple sources of risk. Not surprisingly, previous interventions have addressed some, but not all, of the important sources of risk for depression in childhood and adolescence. The most common focus has been on sources of cognitive vulnerability including a negative attributional or explanatory style, dysfunctional or irrational thinking, ineffective strategies for solving social problems, and maladaptive ways of coping with stress. These constitute the major personal or individual sources of vulnerability to depression.

In contrast to the attention given to individual sources of risk, contextual factors have received relatively little attention. Foremost among the contextual sources of risk are family factors, including parental depression, conflict, and maladaptive parenting. None of the interventions described above have directly addressed the role of parental depression and other sources of family stress that are central to the risk for depression in many children and youth. Some promising efforts in this area have been reported by Beardslee and colleagues in their development of a preventive intervention for families of depressed parents (Beardslee et al., 1993; Beardslee, Wright, Rothberg, Salt, & Versage, 1996). Unfortunately, no child outcome data are yet available on this program.

A comprehensive model of depression will need to include both person-centered and contextual risk and protective factors. Previous research has not identified specific risk factors for depression, in part because there may be few risk factors that are indeed specific to this problem. In light of the high rates of co-occurrence and comorbidity associated with depression, a broader perspective on risk and protective factors appears to be warranted.

5. Should preventive interventions specifically target depression, or should they be aimed at multiple problems simultaneously?

One of the defining characteristics of depression in young people is the pattern of comorbidity with other disorders and co-occurrence with other problems. A glaring omission in previous studies has been the evaluation of the impact of interventions on other problems and disorders, including anxiety, disruptive behavior disorders, alcohol and substance abuse, eating disorders, and suicide. This oversight has operated in both directions, that is, interventions designed to prevent a host of other problems have failed to measure their impact on the prevention of depression, just as depression prevention programs have often not measured their effects on other problems.

As more resources are devoted to the prevention of a wide range of problems in children and youth, we run the risk of overburdening institutions such as schools that are asked to deliver these interventions, as well as the ability and willingness of young people themselves to participate in multiple intervention programs. This problem is a direct reflection of delivering interventions to discrete problems or disorders, rather than conceptualizing and implementing programs in a coordinated manner. A perusal of the content of these interventions reveals substantial overlap in their content. For example, interventions designed to prevent aggression and violence (e.g., Elias et al., 1986; Tremblay et al., 1991; Vitaro & Tremblay, 1994), as well as those to prevent substance abuse, contain many elements similar to the depression interventions reviewed above. Common elements include the development of effective social problem-solving skills and adaptive strategies for coping with stress. Depression interventions differ from these other programs somewhat in their emphasis on prevention of self-blame and other negative ways of thinking. An important next step for future research is to evaluate the efficacy of broadly focused preventive interventions for a wider range of problems.

It is possible that integration of preventive interventions can be best achieved at the universal intervention level, whereas more specific interventions will be needed for selective and indicated programs. This will be true, however, only to the extent that unique risk factors are associated with different problems and disorders. As noted above, however, much of the risk research has not delineated specific risk factors for specific disorders. For example, even if we accept that parental depression is the single strongest risk

factor for depression in children and adolescents, it is also clear that children of depressed parents are at risk for many problems other than depression. Therefore, interventions based on broad models of risk and protective factors may be required.

6. What are the major methodological hurdles facing researchers in the prevention of depression in young people?

Continued development of preventive interventions for depression depends in part on overcoming methodological problems in this research. Several problems reflect generic issues in prevention research, whereas others are more unique to the problems presented by the characteristics of depression in children and adolescents.

First, larger and more diverse samples need to be included in future depression prevention trials. The relatively small samples in previous studies have limited statistical power for testing intervention effects for the whole sample. Further, the small samples have limited the degree to which follow-up analyses can be conducted on the onset of depressive episodes because these will occur relatively rarely in a specified window of time, even within a high-risk sample. Previous research has included primarily middle-socioeconomic-status Caucasian samples, limiting the generalizability of these findings to more ethnically diverse youth and children and adolescents in poverty.

Better understanding of depressive processes and the development of more sophisticated theoretical models require moving beyond the study of the relationship between depressive symptoms to the analysis of more specific risk factors. Beyond assessing initial depressive symptoms, all the studies described in this chapter hypothesized that specific risk factors, such as family conflict, poor academic achievement, and cognitive processing style, were implicated in causing or maintaining depressive symptoms and geared their intervention to improving weak skills or enhancing needed coping resources. To validate a theory, however, the design of the prevention program must include measurement of depressive symptoms/disorder and of the hypothesized risk and protective factors. There are three steps in analyzing the data. First, the study must demonstrate that a decrease in risk factors or an increase in protec-

tive factors is related to the intervention. Second, the study must demonstrate that the changes in risk or protective factors are associated with decreased levels of depression. Third, to demonstrate a preventive effect, the analysis must demonstrate that the prevention group has lower levels of depression than a control group at a long-term follow-up. Several studies have succeeded in doing this well (Gillham et al., 1995; Jaycox et al., 1994).

In most treatment studies, random assignment of individuals to intervention and control groups is used to demonstrate that the intervention, rather than other variables, led to targeted changes. In prevention trials, however, there are several practical constraints to randomization by individual. The majority of prevention programs take place within school classrooms, and it can be difficult and disruptive to randomize children within a classroom to different conditions. In addition, there may be a negative impact on individuals in control groups when they are aware that others are receiving an intervention while they are not. Thus, in prevention trials, groups are often randomized by classroom or school district, rather than by individual, which requires careful assessment of possible between-group differences. Of the four studies presented in this chapter, all either randomized between treatment and control group by individual or paid close attention to equivalence between groups. For example, in the rare cases in which between-group differences were found after careful matching, Petersen et al. (in press) chose to bias the assignment of classrooms to prevention or control conditions against the sought-for effects, thus providing the most stringent test of the prevention program.

Despite gaps in knowledge about the development and course of depressive disorders, considerable information is now available about related risk and protective factors (see above). Although the bulk of knowledge thus far has come from descriptive and epidemiological studies, randomized prevention trials are in many ways ideally suited to test theories about risk and resilience factors. Good prevention studies not only will be based on empirically validated theories but also will be specifically designed to test those theories. Prevention trials can contribute to the understanding of the development and course of depression in two ways. First, using depressive symptoms as risk factors, they can help clarify the relationship between depressive symptoms and depressive disorders. Although this first step will help in deciding when a preventive

intervention is called for, it will not suggest the actual shape of the intervention. The second way prevention studies can contribute to basic research is by elucidating the relationship between depressive symptoms and hypothesized causal mechanisms, such as environmental stress, biological predispositions, and cognitive processing styles. Fortunately, it is possible for prevention workers to target both goals within the same study.

Conclusion: Implications for *Healthy Children 2010*

The prevention of depression in young people warrants increased attention on the agenda of prevention researchers and in national health objectives for children and adolescents. The knowledge base of the characteristics, course, and risk factors for depression is now in place. Promising programs have been developed, and initial evaluation data have been reported. There is considerable promise that future research can lead to programs that can make meaningful reductions in depressive symptoms, episodes of MDD, and the many deleterious correlates and consequences of depression in children and youth.

Greater recognition of the scope and significance of depression in young people has a clear place in the development of objectives for *Healthy People 2010.* First, the goal of reducing suicide among youth (Fleming, 1996) will be facilitated by addressing the role of depression as a significant risk factor for suicide. This is particularly true for adolescents who experience other mental health and behavioral problems in combination with depression. Second, the goal of reducing the overall prevalence of mental disorders among children and adolescents (Fleming, 1996) must include the reduction of the prevalence of depression as part of this objective. As noted above, depression should be included as one of the targets of comprehensive preventive interventions. Third, the goals outlined in *Healthy People 2000* include recognition of enhanced quality of life as an essential element of improved health in the broad sense. Reductions in the prevalence of depressive symptoms and disorders will reflect an important step toward improvement in overall quality of life among our nation's children.

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